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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,909

03/23/2005

Shigeo Okuno

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05/09/2008

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WASHINGTON, DC 20006-1021

EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

05/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/528,909	Applicant(s) OKUNO, SHIGEO	
	Examiner Harry D. Wilkins, III	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/5/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status

1. In view of Applicant's amendment to at least claim 1, and Applicant's remarks regarding the teachings of Bynum et al and Rippel (see pages 5-6 of response filed 3 March 2008), all prior grounds of rejection are hereby withdrawn.

Information Disclosure Statement

2. Several references have been lined through on the attached PTO-1449. These references are not considered published documents since they are either office actions from other U.S. patent applications or European search reports. To the extent necessary, they have been reviewed by the Examiner, but will not be published on the face of any patent granted on this application.

Specification

3. The substitute specification filed 3 March 2008 is hereby entered. Applicant provided the certification under 37 CFR 1.125(b) and (c) that the substitute contains no new matter.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: any relationship

Art Unit: 1795

of how the voltage detector, reference voltage generator, voltage comparator, oscillator, amplifier, waveform shaping circuit, negative pulse generator and electrifying indicator are arranged to achieve the claimed device. Without some claimed structural arrangement between these individual pieces, there is no clear boundary of the scope of the claimed invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taricco (US 5,783,929) in view of Okuno et al (JP 2003-163001).

[The applied Okuno et al reference has a publication date prior to Applicant's international filing date, but after the claimed foreign priority date. Until such time as the foreign priority claim is perfected by filing a certified translation of the foreign application, Okuno et al constitutes prior art against the present application.]

Taricco teaches (see figures 1-3 and cols. 2-3) a device for charging a lead-acid battery including an oscillator (22) and a wave form shaping circuit (28) for applying a modified square wave direct current to the battery to recharge it.

Thus, Taricco fails to teach the structure of a voltage detector, a reference voltage generator, a voltage comparator, an amplifier, a negative pulse generator and an electrifying indicator as claimed.

Regarding the absence of an electrifying indicator, it would have been obvious to one of ordinary skill in the art to have added such for the purpose of indicating to a user that the device was active.

Okuno et al teach (see English abstract and figure) a device for removing membranous lead sulfate deposited on electrodes of a lead-acid battery comprising a voltage detector, a reference voltage generator, a voltage comparator, an amplifier and a negative pulse generator. The device of Okuno et al function to remove the lead sulfate film to enhance the battery condition to the initial manufacturing state by applying a sharp negative pulse during recharging. The circuit for applying the sharp negative pulse included the structure claimed.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the negative pulse generating structure (a voltage detector, a reference voltage generator, a voltage comparator, an amplifier and a negative pulse generator) of Okuno et al into the lead-acid battery charger of Taricco because Okuno et al teaches that the negative pulse application improved operation of the recharged battery.

Regarding the claimed pulse width of less than 1 μ s, a pulse number on the order of 8000-12000 per second and a current value in the range of 10-120 mA, such features are variables within the disclosure of Okuno et al. However, Okuno et al fails to disclose any specific values for these parameters. Since Okuno et al teach the same structure and purpose for generating the negative pulses, either the structure of Okuno et al inherently possessed the capability of applying the claimed pulse width, pulse number and current value, OR it would have been within the expected skill of a

routinized in the art to have optimized the pulse width, pulse number and current value to achieve proper removal of the lead sulfate film from the electrodes of the lead-acid battery.

Regarding claim 3, Okuno et al provide no other power source for applying the negative pulse aside from the battery itself.

Regarding claim 5, since Taricco and Okuno et al teach the same structure and purpose, they inherently result in the surface layer part of the membranous lead sulfate deposited on the electrodes of the lead-acid battery being intensively dissolved.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1795

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

hdw